

**ABSTRACT OF THE DISCLOSURE**

A network is described. In one embodiment, the network comprises multiple subscriber units to communicate with the base station using an orthogonal frequency-division multiple-access (OFDMA) protocol, and a base station. The base-station includes a memory unit to store broadband spatial signature vectors associated with each subscriber and traffic channel allocation logic. The vectors are a function of frequency. The traffic channel allocation logic allocates OFDMA channels using the broadband spatial signature vectors of the subscribers.